

VT-HMI 6151

User's Manual



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1 Foreword

1.1 Copyright Notice

While all information contained herein has been carefully checked to assure its accuracy in technical details and printing, Vantron assumes no responsibility resulting from any error or features of this manual, or from improper uses of this manual or the software. Please contact our technical department for relevant operation solutions if there is any problem that cannot be solved according to this manual.

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1.2 Notes

Applicable notes are listed in the following table:

Sign	Notice Type	Description
	Notice	Important information and regulations
	Caution	Caution for latent damage to system or harm to personnel

1.3 Statement

It is recommended to read and comply with this manual before operating VT-HMI which provides important guidance and helps decreasing the danger of injury, electric shock, fire, or any damage to the device.

1.4 Disclaimer

Vantron assumes no legal liability of accidents resulting from failure of conforming to the safety instructions.

1.5 Limitation of Liability/Non-warranty

For direct or indirect damage to this device or other devices of Vantron caused by failure of conforming to this manual or the safety instructions on device label, Vantron assumes neither warranty nor legal liability even if the device is still under warranty.

1.6 Safety Instructions

- ✧ Keep and comply with all operation instructions, warnings, and information.
- ✧ Pay attention to warnings on this device.
- ✧ Read the following precautions so as to decrease the danger of injury, electric shock, fire, or any damage to the device.

1.7 Precautions

- ✧ Pay attention to the product labels/safety instructions printed on silk screens.
- ✧ Do not try repairing this product unless declared in this manual.
- ✧ Keep away from heat source, such as heater, heat dissipater, or engine casing.
- ✧ Do not insert other items into the slot (if any) of this device.
 - Keep the ventilation slot ventilated for cooling.
 - System fault may arise if other items are inserted into this device.
- ✧ Installation: ensure correct installation according to instructions from the manufacturer with recommended installation tools.
- ✧ Ensure ventilation and smoothness according to relevant ventilation standard.

1.8 Safety Instructions for Power Cables and Accessories



Proper power source only

Start only with power source that satisfies voltage label and the voltage necessary according to this manual. Please contact technical support personnel of Vantron for any uncertainty about the requirements of necessary power source.



Use tested power source

This product still contains a button lithium battery as a real-time clock after its external power source is removed and therefore should not be short-circuited during transportation or placed under high temperature.



Place cables properly:

Do not place cables at any place with extrusion danger.



Cleaning Instructions

- ✧ Please power off before cleaning the device.
- ✧ Do not use spray detergent.
- ✧ Clean with a damp cloth.
- ✧ Do not try cleaning exposed electronic components unless with a dust collector.
- ✧ Support for special fault: Power off and contact technical support personnel of Vantron in case of the following faults:
 - The device is damaged.
 - The temperature is excessively high.
 - Fault is still not solved after the operation according to the manual.

2 Overview

2.1 Introduction

Thank you for choosing Vantron. It is our commitment to provide our valued customers with the embedded devices equipped with the state-of-the-art technology and the best product services.

HMI, the abbreviation for Human-Machine Interface, enables the interaction between operators/users and applications, connects industrial control products such as PLC, transducer, DC speed regulator, meter, etc. HMI adopts a display for displaying and input units such as touch screen, keyboard, mouse, etc. for writing working parameters or inputting operation commands. As a digital device for realizing information interaction between human and machine, HMI is composed of hardware and software. Based on its ample function interfaces and powerful user operational interface, it is very suitable for control units such as medical device, intelligent transportation, industrial field, etc.

Vantron's VT-HMI products are based on the most advanced ARM and Intel Atom processors and have low-power consumption and high integration. The products are designed for applications such as industrials, medicals, and transportations, etc.

2.2 Product Series

2.2.1 Product Order Coding Rule

VT-HMI- A BB C:

Type suffix:

1: Basic type;

2: Enhanced type or other types

Screen size:

07, 08, 10, 15: for LCD in 7, 8, 10, 15 inches.

Product series:

3: PXA270 ARM10 processor platform

5: IMX31 ARM11 processor platform

6: Intel ATOM x86 processor platform

2.2.2 Ordering Information

Series 3: PXA 270 ARM10 processor based

VT-HMI-3081	8.4" TFT, PXA270 520MHz, Ethernet, RS232, RS422/485, USBH, USB
VT-HMI-3082	8.4" TFT, PXA270 520MHz, Ethernet, 5xRS232, 2xRS422, RS485, 4xUSBH, CAN
VT-HMI-3101	10.4" TFT, PXA270 520MHz, Ethernet, RS232, RS422/485, USBH, USB
VT-HMI-3102	10.4" TFT, PXA270 520MHz, Ethernet, 5xRS232, 2xRS422, RS485, 4xUSBH, CAN, VGA

Series 5: iMX31 ARM11 processor based

VT-HMI-5071	7" TFT, 16:9 Wide Screen, iMX31 532MHz, Ethernet, RS232, RS422/485, USBH2.0
VT-HMI-5101	10.2" TFT, 16:9 Wide Screen, iMX31 532MHz, Ethernet, RS232, RS422/485, USBH2.0

Series 6: x86 processor based

VT-HMI-6101-1	10.4" TFT, ATOM 1.1GHz, 512MB, 1000M Ethernet, RS232, RS422/485, 4xUSBH2.0
VT-HMI-6101-2	10.4" TFT, ATOM 1.6GHz, 512MB, 1000M Ethernet, RS232, RS422/485, 4xUSBH2.0
VT-HMI-6151-1	15.1" TFT, ATOM 1.1GHz, 512MB, 1000M Ethernet, RS232, RS422/485, 4xUSBH2.0
VT-HMI-6151-2	15.1" TFT, ATOM 1.6GHz, 512MB, 1000M Ethernet, RS232, RS422/485, 4xUSBH2.0

3 VT-HMI-6151 Hardware Instructions

3.1 Product Appearance

Front & Side View



Top View



Back & Side View

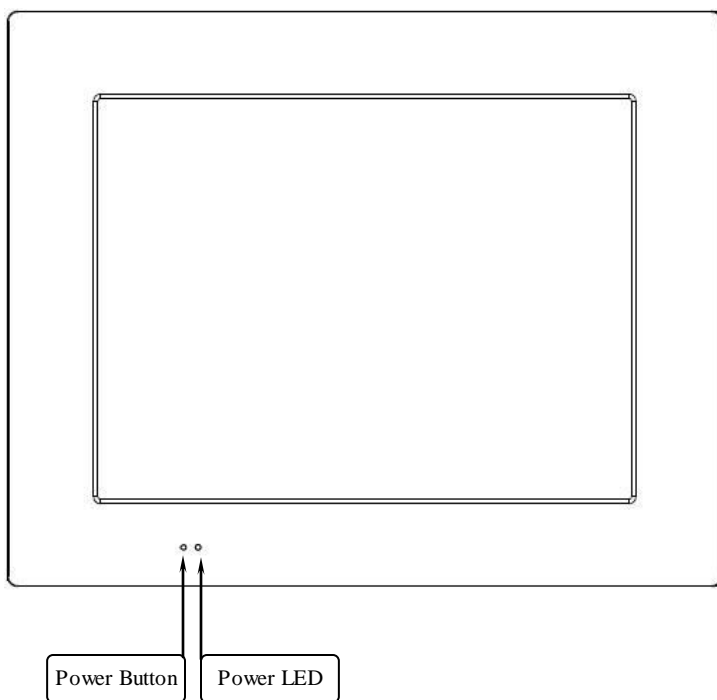
3.2 Specifications

CPU	Processor	Intel ATOM Z510 1.1G/Z5301.6GHz
Memory	On Board RAM	DDR 512MB (up to 1GB), 533MHz
	ROM Internal	80GHD (16G DOC Optional)
	External Storage	1x MMC/SD, USB 2.0 Storage pre-installation needed
Display	Resolution	10.4", LVDS TFT, 4:3, 800x600, 18bit color
	Contrast	500:1
	Brightness	400 cd/ m2
	View Angle	60U/70D, 70L/70R
	Touch Screen	4 Wires resistance type, Hardness, 4H
	Video	VGA (Internal optional)
Interfaces	Ethernet	10/100/1000-BaseT
	USB	4xUSB2.0 Host
	COM Port	1xRS232, 1xRS232/RS422/485
	Audio	1xMIC in 3.5mm, 1xSpeak Out 3.5 mm
	Alarm	Buzzer Out
	Printer Port	Printer in USB Interface
	RTC	Supported
	PS/2	2xPS/2 (Mouse, Keyboard Internal)

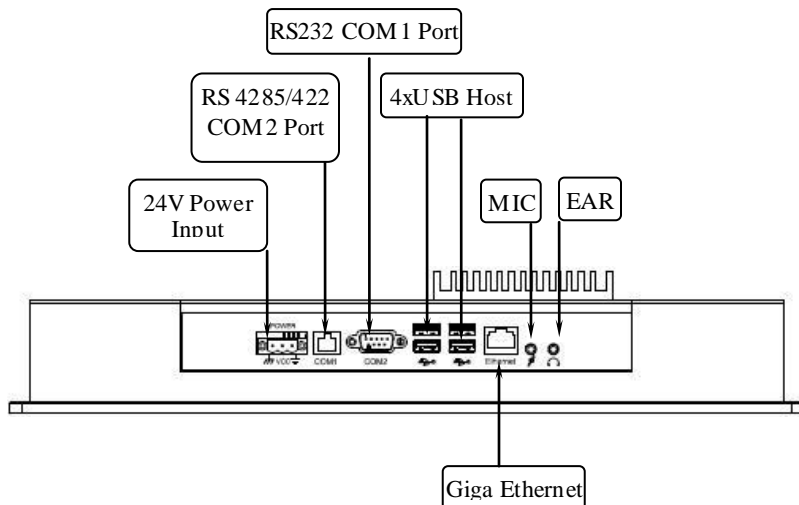
Software	OS	WinCE 5.0/6.0, WinXP/XPE, or Linux 2.6
	Applications	Provide SDK, support MCGS tool
Power	Input	DC24V (18-32V)
	Consumption	22W (Pulse 40W)
Mechanical	Dimensions	315x247x47mm
	Install Window	297x228 mm
	VESA Install	75x75mm, 3 mm Screw(Optional)
	Weight	2.8Kg
	Enclosure	Aluminum Alloy with Black Color (optional for other colors)
Environment Condition	Temperature	Operating:-10°C ~ +60°C (ETR:-30°C ~ +70°C Optional)
		Storage: -20°C ~ +70°C, (ETR:-40°C ~ +80°C Optional)
	Humidity	10-85%RH (Non-Condensation), operating and storage
	Vibration	2G, 9-26 Hz (10 times in X,Y,Z directions)
	Protection	Front Panel: IP54 (IP65 Optional)
	Cooling Mode	Fan less, Heat Sink
	Certifications	FCC and CE

3.3 Interface Instructions

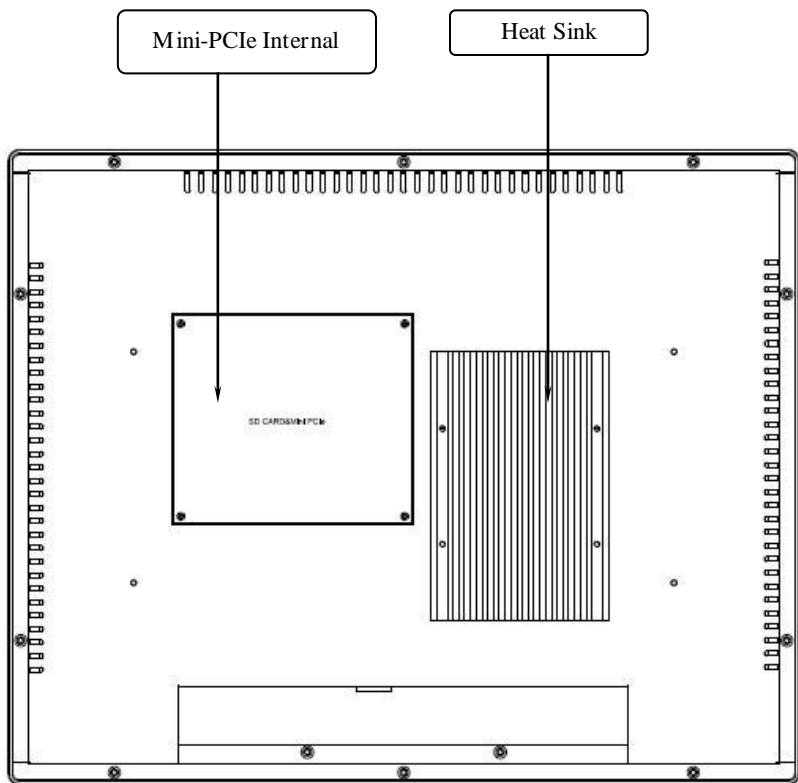
3.3.1 Front View



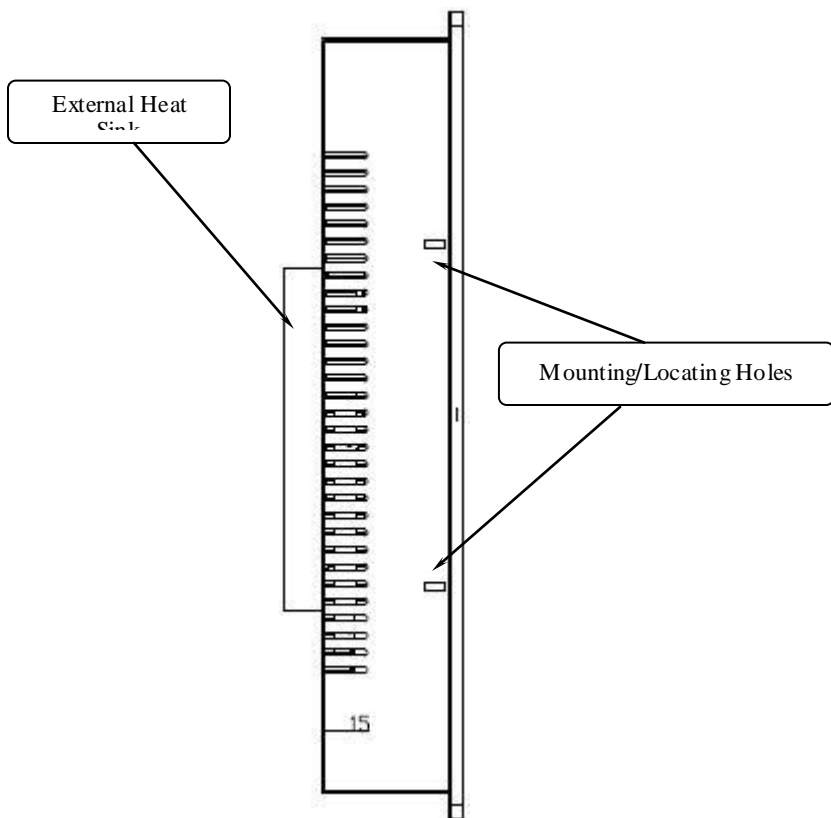
3.3.2 Bottom View



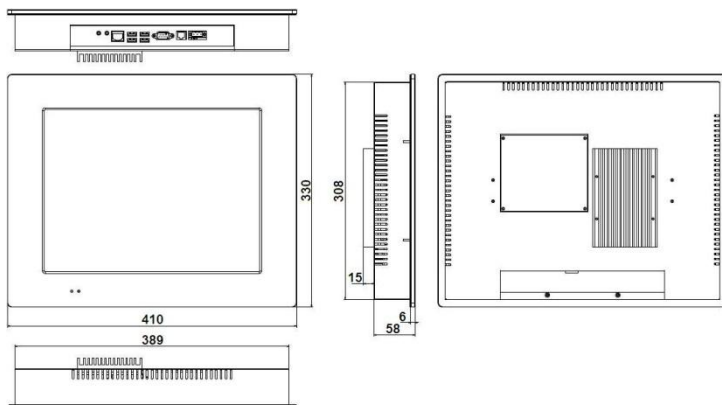
3.3.3 Back View



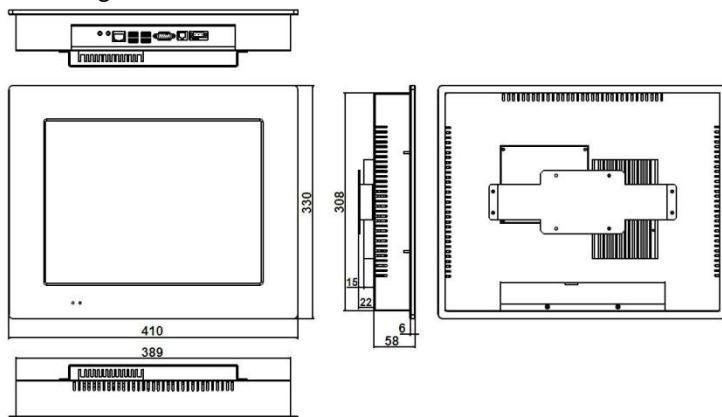
3.3.4 Left View



3.4 Dimension



Mounting Window Size: 392x311 mm

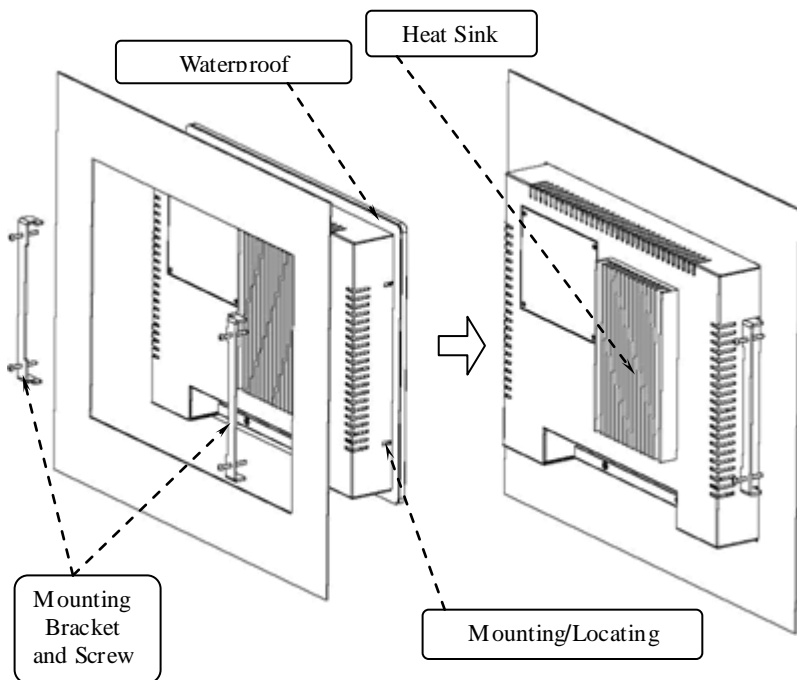


Dimension with VESA Adapter.

3.5 Hardware Installation

The product supports standard VESA mounting (75 x 75 mm x Φ 3mm) as well as side mounting.

The left and right sides of the device housing have two mounting slots respectively for inserting mounting brackets to needed positions by tightening screws (as shown below):



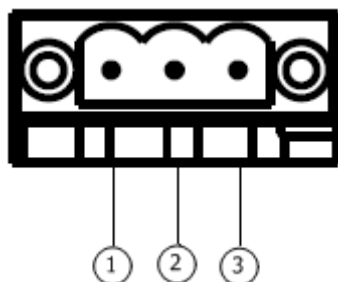
3.6 Interface Description

3.6.1 Power Button

To power up the system, it need user to press the power button in the lower left corner of front panel.

3.6.2 DC24V Power Input

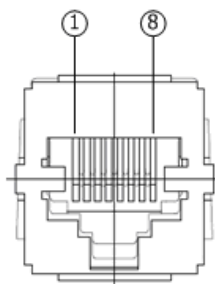
3 pins 5.08mm pitch terminal with screw lock



Pin	Description
1	GND (power ground)
2	Power (+24V DC +)
3	Protection Ground

3.6.3 Ethernet Interface

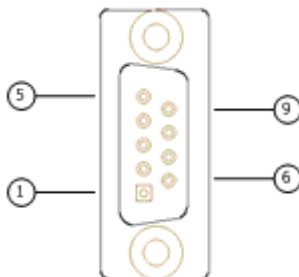
Standard RJ45 interface, supporting 10M/100M self-adaptation



Pin	Description Giga Net Usage, (10/100M Usage)
1	MX1+, (TX+)
2	MX1-, (TX-)
3	MX2+, (RX+)
4	MX3+, (N.C.)
5	MX3-, (N.C.)
6	MX2-, (RX-)
7	MX4+, (N.C.)
8	MX4-, (N.C.)

3.6.4 D Sub-9 RS232 Connector

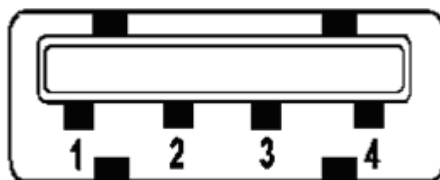
Standard vertical DB-9 male connector, baud rate up to 921,600bps



Pin	Description
1	DCD
2	RXD
3	TXD
4	DTR
5	GND (ground pin)
6	DSR
7	RTS
8	CTS
9	RI

3.6.5 USB Host Connector

Standard USB host connector, type A

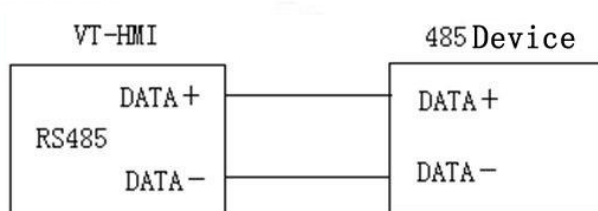


Pin	Description
1	USB VCC
2	USB NEG
3	USB POS
4	GND

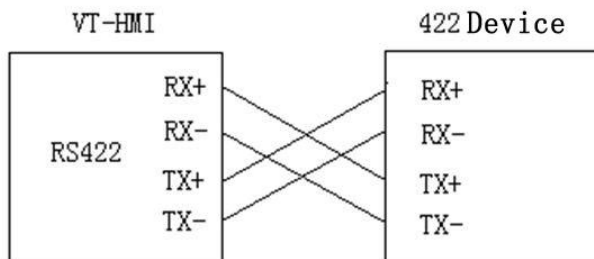
3.7 I/O Interface Instructions

3.7.1 RS485/422

3.7.1.1 485 Cable Connection



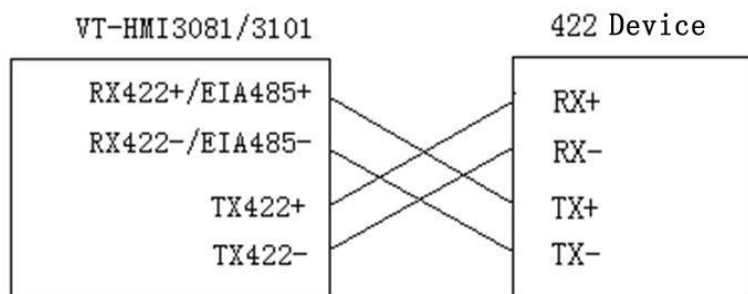
3.7.1.2 422 Cable Connection



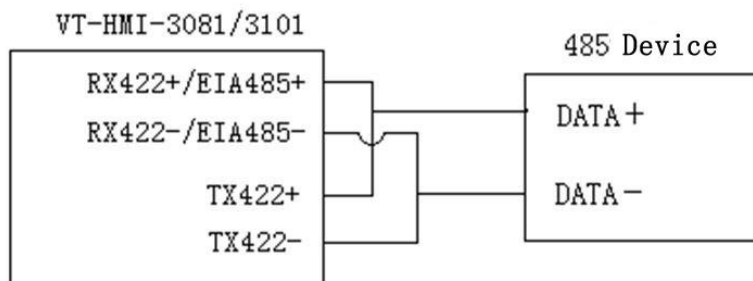
3.7.1.3 RS422/485

RS422 and RS485 share the same RJ11 interface, and the electrical properties thereof are determined according to different connection modes.

- RS 422 wiring suggestion



- RS 485 wiring suggestion



3.8 Packing List

Item	Part Description	Quantity	Type
1	Install Mechanical Tools	1pcs	140040-0006EV,VANTRON
2	Cushion for Enclosure's Front Panel Protection	1pc	140010-0059EV,VANTRON
3	Screw, Mounting Enclosure	4pcs	250010-01001EV,VANTRON
4	Power Terminal	1pc (3pins)	210071-01041EV, ANYTEC:VM-5.08-3P
5	VESA Adapter	1pc	140020-0058EV, VANTRON

4 Software Instructions

4.1 Brief Introduction

VT-HMI-6151 can be pre-loaded with Windows XP and WinCE5.0 image, so that the system can automatically run WinCE 5.0 when powered up after press power on button.

4.2 WinCE Instructions

4.2.1 Windows CE Application Development

4.2.1.1 Development Environment

To create Win32 and MFC applications with EVC4.0 and create Win32, MFC and C# applications with VS2003, VS2005 and VS2008, the integrated development environment (IDE) can be purchased from the agents of Microsoft Company.

Utility CD-ROM includes SDK for user to create custom applications. It is required to install SDK if you want to create your own applications on VT-HMI-6151. Refer to the installation instructions in SDK folder in CDROM.

5 Tips



Waste Disposal

It is recommended to disassemble the device before abandoning it in conformity with local regulations. Please ensure that the abandoned batteries are disposed according to local regulations on waste disposal. Do not throw batteries into fire (explosive) or put in common waste canister. Products or product packages with the sign of “explosive” should not be disposed like household waste but delivered to specialized electrical & electronic waste recycling/disposal center. Proper disposal of this sort of waste helps avoiding harm and adverse effect upon surroundings and people’s health. Please contact local organizations or recycling/disposal center for more recycling/disposal methods of related products.

Comply with the following safety tips:



Do not use in combustible and explosive environment

Keep away from combustible and explosive environment for fear of danger.



Keep away from all energized circuits.

Operators should not remove enclosure from the device. Only the group or person with factory certification is permitted to open the enclosure to adjust and replace the structure and components of the device. Do not change components unless the power cord is removed. In some cases, the device may still have residual voltage even if the power cord is removed. Therefore, it is a must to remove and fully discharge the device before contact so as to avoid injury.



Unauthorized changes to this product or its components are prohibited.

In the aim of avoiding accidents as far as possible, it is not allowed to replace the system or change components unless with permission and certification. Please contact the technical department of Vantron or local branches for help.



Pay attention to caution signs.

Caution signs in this manual remind of possible danger. Please comply with relevant safety tips below each sign. Meanwhile, you should strictly conform to all safety tips for operation environment.

**Notice**

Considering that reasonable efforts have been made to assure accuracy of this manual, Vantron assumes no responsibility of possible missing contents and information, errors in contents, citations, examples, and source programs.

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